State of New Jersey

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SHAWN M. LATOURRETTE
Commissioner

VIA EMAIL ONLY

July 6, 2022

John Schenkewitz
Remediation Manager
Hess Corp
601 Jack Stephan Way
West Trenton, NJ 08628

RE: Amerada Hess Corp- Former Port Reading Refinery
EPA ID No. NJD045445483
750 Cliff Road
Woodbridge Township, Middlesex County
PI#: 006148

Comment Letter: Pre & Post Closure Groundwater Sampling Plan for AOC 3: No. 1 Landfarm Response to Comments

Dear Mr. Schenkewitz:

The New Jersey Department of Environmental Protection (Department) has completed a review of the Pre & Post Closure Groundwater Sampling Plan for AOC 3: No. 1 Landfarm Response to comments dated April 22, 2022. The document was submitted pursuant to the Site Remediation Reform Act (N.J.S.A. 58:10C-1 et seq.), the Administrative Requirements for the Remediation of Contaminated Sites (N.J.A.C. 7:26C), and the Technical Requirements for Site Remediation at N.J.A.C. 7:26E.

The Department has the following additional comments:

1. The response is acceptable. Please include correspondence in an appendix to the finalized No. 1 Landfarm groundwater sampling plan (GWSP) for future reference.

2. The response is acceptable. Information was provided on an interim status operating period for the No. 1 Landfarm prior to RCRA Part B permitting. The No. 1 Landfarm will follow closure and post closure requirements consistent with 40 CFR Part 264 incorporated by reference to the New Jersey Hazardous Waste Regulations (N.J.A.C. 7:26G-1 et seq.).

3. While a stand-alone Conceptual Site Model (CSM) is not required for the No. 1 Landfarm, local influences on ground water flow and potential contaminant migration need to be considered in the No. 1 Landfarm sampling plan. Some specific considerations, such as a

tidal influence evaluation at No. 1 Landfarm wells, is needed to finalize the plan. Tidal influence may affect well locations and/or time of sampling to reflect potential impacts to ground water and contaminant migration. Clarify that a tidal influence evaluation will be performed after installation of the additional monitor wells (Comment 4, below).

If there are impacts to ground water, an assessment of ground water–surface water interaction and investigation of potential discharge to surface water impacts will be needed. The Department concurs that this can be part of the AOC 104 North Ditch remedial investigation.

Existing well records/logs were provided as part of the response. Aware Corporation 1985 design drawings (provided with the November 1, 2019 response to comments on the 100% cap design for the No. 1 Landfarm) were not included with the response for future reference.
The AWARE 1985 design drawings will need to be included with the final No. 1 Landfarm GWSP. They should also be included with the RAR – Construction Complete Report for the No. 1 Landfarm capping.

4. This comment referred to the assessment of potential ground water impacts from: 1) wastewater management systems installed for leachate and stormwater collection, treatment, discharge, and 2) the No. 1 Landfarm treatment areas along downgradient ground water flow paths between L1-2 and L1-3. The leachate collection sump (5 sections of 8' reinforced concrete pipe jointed together) was identified as a specific concern.

   40' Leachate Collection Sump: The 40-foot-long leachate collection sump and leachate piping exiting the landfarm and connecting to the sump, is an area of specific concern with respect to the No. 1 Landfarm monitoring plan. This was discussed during the April 27, 2022, site visit. Flow paths from the sump do not appear to be reflected by L1-2 or L1-3. Based on field discussions, the 40-foot-long sump will be included on the No. 1 Landfarm figures and an additional well location was discussed within the fenced area limits of the No. 1 Landfarm and downgradient of the 40-foot sump; the well location will be included in the sampling plan.

   Well Sampling Data: Current well sampling was summarized. Future well sampling location, frequency and parameters are evaluated with Addendum B, below.

   Proposed Wells: Two additional wells are described and shown on Figure 1 (attached). One well appears to be downgradient of former leachate/storm water piping, oil/water separator and oil sump. A second well is closer to the No. 1 Landfarm limits along downgradient flow paths from a large portion of the land treatment area and between L1-2 and L1-3. The Department concurs with the proposed well locations.

5. A and C: Ground water and sump sampling comments are provided under Addendum B, below.

   Item B: The response is acceptable. The response clarified that the storm water gate valve is closed when leachate is discharged to the manhole and then to the treatment building so there is no mixture with storm water at the treatment building sampling point.

Item D: The response stated leachate volumes are reported under the New Jersey Pollutant Discharge Elimination System (NJPDES) Discharge to Surface Water permit. Clarify that leachate volume reporting under the DSW permit will be provided to BCM as part of the closure/post closure GWSP.

6. Sampling plan clarifications were provided. Cap construction began October 2021.

   Item A: BG-wells are included in the sampling plan for SVOCs, metals and ammonia analyses. Volatile Organic Compounds (VOCs_ are excluded based on prior data sets. 2021 Field Sampling Data Sheets were reviewed with the No. 1 Landfarm data sets. A Department summary of some of the Field Sampling Data Sheet (FSDS) data is attached. The data is accepted with limited qualifications. Since BG-2 and BG-3 are screened below the water table and have drawdown greater than 0.33', the following needs to be considered in their sampling:
   - Sampling should target pump intakes 2-3' below the top of screen due to drawdown and to ensure that the stabilization readings minimize any mixing with casing water at the pump intake at these low yielding wells.
   - Depth to Water (DTW) after pump placement and prior to pump start is requested as the first FSDS data reading.
   - Due to established drawdown during purging, purge rates need to be reduced as soon as possible.

   Item B: The response is acceptable.

   Item C: L1-2 and L1-3 will be sampled annually for VOC parameters. Sampling will be performed at peak low tide if the wells are tidally influenced. This will require a tidal fluctuation evaluation.

   Item D: See Comment 4, above, regarding ground water monitoring for the 1) No. 1 Landfarm, 2) leachate and storm water management infrastructure, and 3) No. 1 Landfarm leachate collection sump.

   Item E: The response is acceptable. A well construction summary table for No. 1 Landfarm wells was attached based on the November 2021 approved Well Construction Manual. This table will need to be updated with the new well completion information.

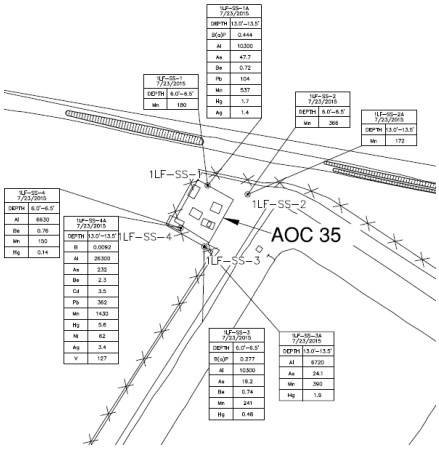
   Item F: The tidal stage at sampling will be recorded during gauging and sampling at the No. 1 Landfarm on the FSDS. Clarify that this will include gauging at the North Ditch L1-SW.

7. The response stated the manhole, oil/water separator, oil sump, leachate sump, etc. require further investigation. These units are outside of the limits of the No. 1 Landfarm treatment area. See Addendum A, below.

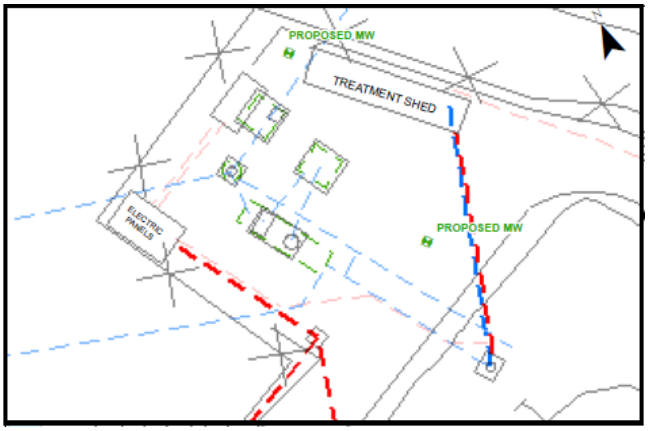
8. The response is acceptable (see Comment 3, above). Investigation of any impacts to the North Ditch due to No. 1 Landfarm operations, including impacted ground water discharge to the North Ditch, will be evaluated under AOC 104.

Supplemental Comments:

Addendum A: Per Addendum A, closure of the leachate and storm water management systems will be evaluated after capping is complete and leachate generation is eliminated.



2015 SIR Figure 28 AOC 35:



4-22-22 RTC Figure 1 inset (doesn't include leachate sump):

9. In the figure above, identify storm water treatment/management/discharge changes since cessation of discharge to the AWWT Plant and information that leachate is directed to the treatment plant without mixing with storm water. The April 27, 2022 site visit identified storm water storage in frac tanks.

10. Based on the figure above, clarify and list the structures that were associated with No. 1 Landfarm operations. This would appear to include the 40-foot leachate sump and manhole; AOC 35 units (e.g., piping outside of the landfarm, oil sump, oil/water separator, etc.); and the current treatment works (piping/building).

11. All units associated with the RCRA land disposal unit need to be included in the RCRA closure process. Investigation and closure plans will be needed for these structures. A schedule is requested.

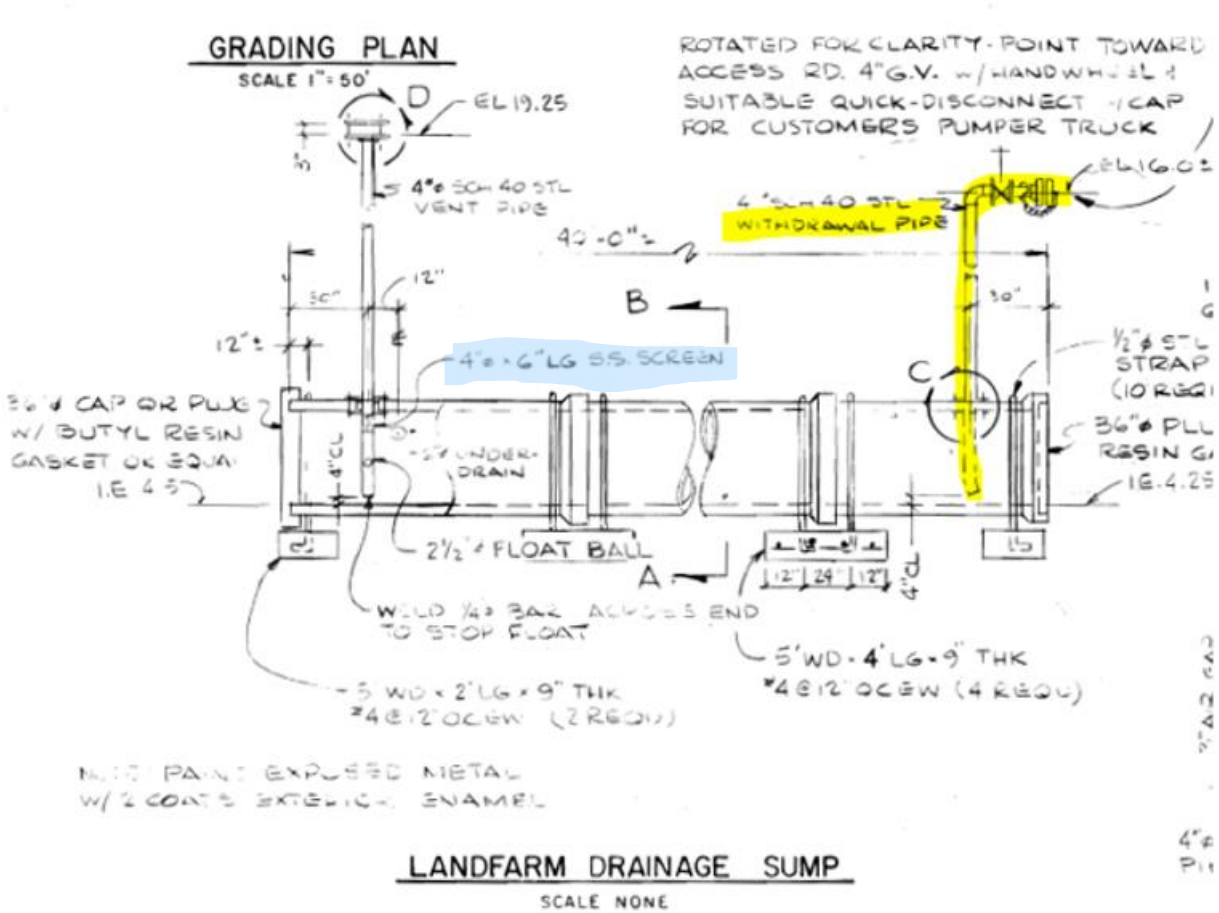
Addendum B:

12. Leachate Sample Collection Methods:"…The NJDEP is concerned that the current sample collection method could potentially bias the results for VOCs low. Please note that (as summarized below) VOC results have been consistently below Groundwater Quality Standards (GWQS)...". Historic sample collection via the leachate discharge stream to the manhole, or at the Treatment Building after discharge to the manhole and conveyance to the Treatment Building sample port, are not conservative for VOCs. VOC sampling methods that are not conservative for VOCs result in qualified VOC data. The design diagrams and affirmation that the leachate collection sump can be sampled prior to pumping out to the manhole and then to the Treatment Building will mitigate this concern.

13. "…Also, the landfarm is surrounded by six (6) groundwater monitoring wells that are sampled on a quarterly basis. Groundwater samples collected from all of these monitoring wells have also been consistently below GWQS for VOCs as well...". As previously identified, most No. 1 Landfarm wells are upgradient to side gradient of the No. 1 Landfarm land application/treatment areas. L1-2 and L1-3 appear to represent flow paths from portions of land treatment areas. Item 4, above, identifies new well locations that represent flow paths from: 1) the majority of the land treatment area; 2) leachate/storm water management structures; and 3) the 40-foot leachate collection sump.

14. "…the collection of the leachate sample can be modified going forward and be collected via a bailer from the existing leachate sump. The leachate within the existing sump can be accessed via vertical piping that currently houses the liquid level sensor, which can be temporarily removed during sampling events and immediately replaced to continue normal operations…". This response addresses the immediate question of another way to sample the sump. Additional information is requested on sump access/sampling:

    - Clarify: 1) which access point will be used for sampling based on below drawing and actual site conditions, and 2) whether both the float/vent pipe and withdrawal pipes are screened pipe sections (the withdrawal pipe appears to be slotted within the sump but the saved drawing section for the vent pipe with the float ball isn't clear).



    - Assess sediment accumulation in the sump.
    - As part of sampling plan:
        - Screen for PID when open sump access point.

- Screen for LNAPL at leachate liquid surface with interface probe at initial sampling event.
- Determine DTW and Total Depth to determine leachate sump water column length at time of sampling and targeted bailer sample interval (e.g., mid-point water column).
- Clarify if all leachate sample parameters (VOC+TICs, SVOC+TICs, TAL metals, ammonia) will be collected from the leachate sump and the sample collection method(s) for the analytes (e.g., bottom filling bailer, peristaltic pump, etc.).

15. Analytical Results: The leachate summary table shows recent reductions in nickel concentrations. Please discuss the change in nickel concentrations between 2020 and 2021. Were any changes made to the pump or the pump intake depth within the sump? If there is any sediment accumulation within the sump, and the pump intake was reset higher in the sump, this could result in a change in leachate sample results. Leachate data summaries need to identify any changes in leachate sample locations, e.g., at discharge to manhole, at the Treatment Building sample port, at the sump, etc.

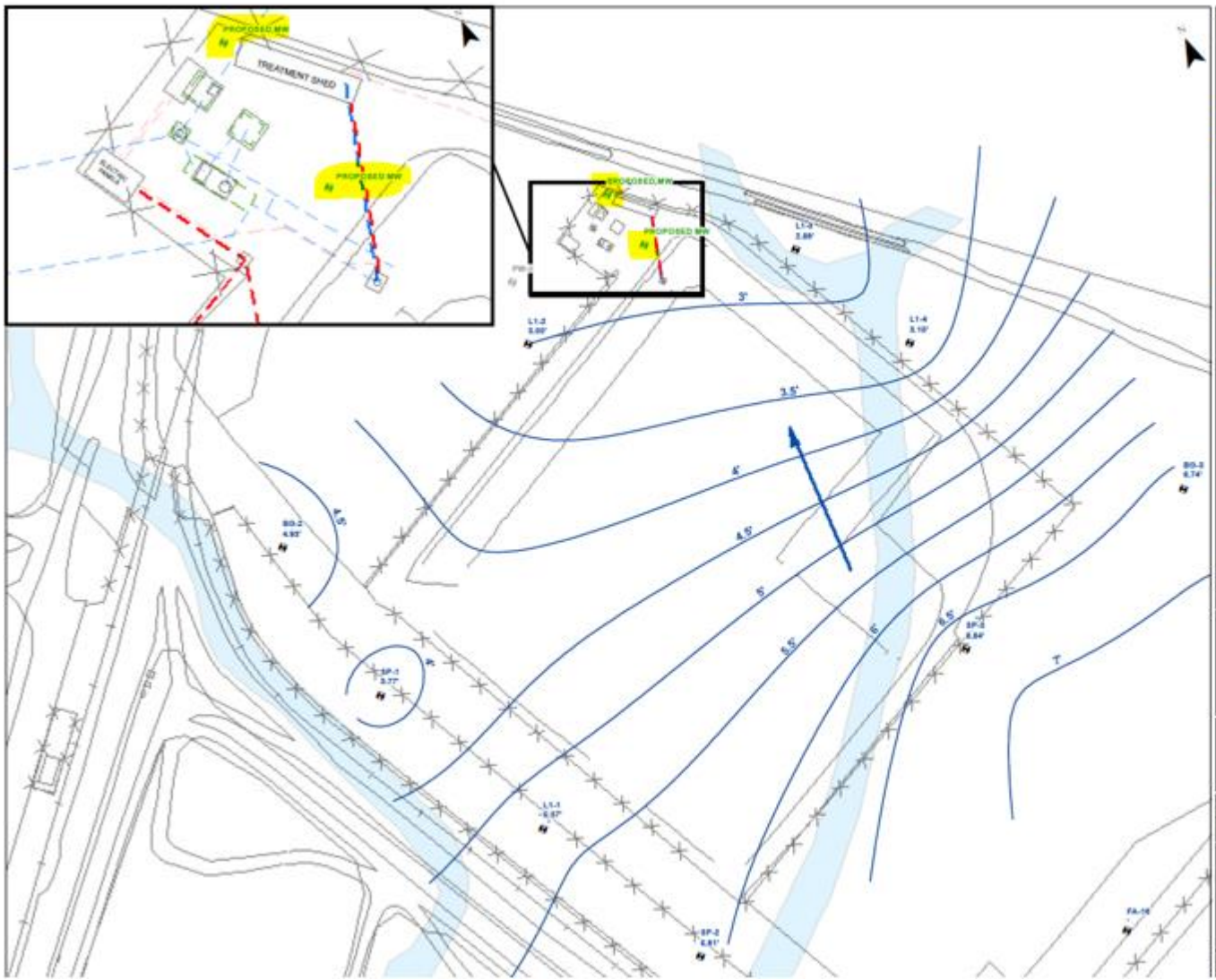
Modified Proposed Sampling Plan:

Sample ID	Frequency	Parameters	Location
Leachate (Pre-Treatment)	Quarterly *	TCL VOCs + Tics, TCL SVOCs + TICs, TAL Metals, Ammonia	Not Applicable
SP-1, SP-2, and SP-3	Quarterly	TCL VOCs + Tics**, TCL SVOCs + TICs, TAL Metals, Ammonia	Up-gradient/Side-gradient
L1-1 through L1-4	Quarterly	TCL SVOCs + TICs, TAL Metals, Ammonia	L1-2 and L1-3: down-gradient, L1-1: up-gradient, and L1-2: side-gradient
BG-2 and BG-3	Quarterly	TCL SVOCs + TICs, TAL Metals, Ammonia	Side-gradient
Proposed Wells	Quarterly	TCL VOCs + Tics, TCL SVOCs + TICs, TAL Metals, Ammonia	Down-gradient

*Leachate samples will be collected until only a de minimus amount of leachate is being produced. Leachate volumes are expected to decrease following capping of the landfarm.

** A modification of sample parameters may be requested once four (4) quarters of analytical results are below applicable GWQS.

16: The Sampling Summary Table does not include annual VOC sampling at L1-2 and L1-3 (Comment 6, Item C).



Legend

- Monitoring Well
- Proposed Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction

Underground Utilities

- Active Electric
- Active Piping
- Inactive Electric
- Inactive Piping
- Underground Sump
- Former Smith Creek Channel

L1-2 Well I.D.
3.00' Water Elevation (ft bgs)

NOTE:

1. All wells gauged on April 14, 2022
2. Underground Utilities are an estimation based off of:
   - 1989 Construction Plans Modifications by Amerada Hess Corp
   - June 2015 GPR Survey by American GeoPhysics Inc.
   - Key Environmental Inc. Existing Site Conditions Plan 11/11/2019

   Actual site conditions may not relect conditions indicated on figure.

0 12.5 25 50 75 Feet

FIGURE: 1
APRIL 2022
GROUNDWATER CONTOUR WITH PROPOSED MONITORING WELL LOCATIONS

HESS CORPORATION
FORMER PORT READING COMPLEX
750 CLIFF ROAD
PORT READING, NEW JERSEY

Project #:	1114J01	**Drawn:**	4/19/2022
SRP PI#:	006148	**Drawn By:**	RC

Earth Systems
Environmental Engineering
1525 Highway 71, Belmar, NJ 07719
T. 732.759.6444 | F. 732.759.0451

Summary of No. 1 Landfarm field sampling data (FSDS):

Well ID	Screen (TOC)	Pre-pump Installation DTW (TOC)	Total Drawdown*	Pump Intake Depth (TOC)	Comment
January 2021					
L1-1	4.25-14.25	4.8	0.3/**0.64**	6.0	*1.2' below WT*
L1-2	5.5-15.5	5.89	0/0.11	7	*1.1' below WT*
L1-3	6.4-11.4	6.34	0/0.04	8	*1.66' below WT*
L1-4	6-11	7.79	0/0.09	9	*1.2' below WT*
BG-2	4-9	2.5	0.4/**0.8**	5	**1' below TOS**
BG-3	7-12	3.76	0/0.08	9	2' below TOS
April 2021					
L1-1	4.25-14.25	4.01	0.01/0.33	7	2.75' below TOS
L1-2	5.5-15.5	5.65	0.05/0	8.7	3' below WT
L1-3	6.4-11.4	6.01	0.02/0.17	8	*1.6' below TOS*
L1-4	6-11	7.01	0.33/**0.69**	9.1	2.1' below WT
BG-2	4-9	1.81	**1.03/2.22**	5.5	***1.5' below TOS***
BG-3	7-12	2.76	**1.6/1.94**	6.5	**in well casing**
July 2021					
L1-1	4.25-14.25	3.39	0/0.6	7	2.75' below TOS
L1-2	5.5-15.5 5.62	0/0.3	8	2.38' below WT	
L1-3	6.4-11.4 5.97	0.11/0.25	8	2.03' below WT	
L1-4	6-11	6.85	0/0.37	9	2.15' below WT
BG-2	4-9	1.67	0.36/**2.14**	5	**1' below TOS**
BG-3	7-12	2.71	**0.63/1.02**	8.5	**1.5' below TOS**
Oct 2021					
L1-1	4.25-14.25	4.83	0.12/**0.53**	7	2.17' below WT
L1-2	5.5-15.5 6.17	0.02/0.02	8	1.83' below WT	
L1-3	6.4-11.4 6.52	0.02/0.15	8.5	1.98' below WT	
L1-4	6-11	7.96	0.17/0.3	9.5	1.54' below WT
BG-2	4-9	2.59	**0.83/1.26**	5	**1' below TOS**
BG-3	7-12	4.62	**1.28/2.2**	9	2' below TOS

*(total drawdown from first to last DTW purge stabilization reading)/(total drawdown from pre-pump installation DTW to final purge DTW)

This table includes pump locations within the well casing, and pump placement less that 2-3' below the top of screen. The targeted pump intake depth is premised on the placement of low flow sampling pumps at the center of a 5' saturated well screen.

Nothing in this correspondence affects Hess' potential liability and obligations to the State Trustee, the Department, or its Commissioner regarding natural resource injuries, restoration, or damages.

If you have any questions regarding this matter, contact Julia Galayda at Julia.Galayda@dep.nj.gov.

Sincerely,

Joseph Nowak, Environmental Specialist 4
Bureau of Case Management

Cc: Julia Galayda, BCM
John Virgie, LSRP, Earth Systems
Ann Charles, BEERA
Jill Monroe, BGWPA